the Medical Institute. This institution was founded by Dr. Chapman, although, as we learn, he has never participated in the fees, or exercised any control over the appointments to the chairs. In days of yore, the doctor was a leading debater at the Philadelphia Medical Society, when the floor of that society was a field, in which the ablest members of the profession met in earnest and often vehement discussion. Dr. Chapman has several times filled the honourable post of President of the Society. He is now the Senior Vice-President of the American Philosophical Society, and has, we believe, been chosen corresponding member of most of the learned societies of Europe.

Dr. Chapman's principal work is his "*Therapeutics*," published in 1817. It has gone through seven editions, one surreptitious; but the doctor has since refused to have it reprinted, until he finds time to bestow on it a thorough revision. The "*Therapeutics*" has enjoyed a long popularity. It is written in a very attractive style, and, as is well known, is thoroughly impregnated with most of the peculiar and original views of the author. It is, perhaps, hardly necessary to observe, that some of these are not in accordance with the opinions of a large portion of his professional brethren—as, for instance, the theory of the modus operandi of medicines.

In 1820, Dr. Chapman commenced the publication of the "Philadelphia Journal of the Medical and Physical Sciences," which he continued to edit for many years. The Journal was undertaken with liberal views—the doctor never receiving a salary for his services. He has since been an occasional contributor to different periodicals. A large number of his lectures have been published in the previous volumes of this journal—elegantly written and standard monographs on a variety of subjects.

We feel that this sketch does very imperfect justice to one of the brightest ornaments of the profession. It has, however, the merit of being executed in a spirit of entire candour.

Observations on some of the signs of live and still birth, in their applications to Medical Jurisprudence. By JOHN B. BECK, M. D., Professor of Materia Medica and Medical Jurisprudence in the College of Physicians and Surgeons of the University of the State of New York.

"In all cases of alleged child murder, one of the great questions to be established, is the fact of the child's having respired or not. As the signs by which this is to be determined are still the subject of much difference of opinion among medical jurists, it becomes important to enlarge our existing stock of knowledge, by the accumulation of new and repeated observations. With this view, I have embraced every opportunity that has been thrown in my way of examining the dead new-born subject. The following observations are founded upon the examination of ten such subjects, which I have been enabled to make through the kindness of some of my professional friends. To Dr. Wilson, formerly physician of the Bellevue Hospital, from which institution many of the subjects were furnished, I am particularly indebted. As the circumstances connected with the birth of each are known, no doubt or uncertainty can attach to the accuracy of the conclusions drawn from them.

Among the tests principally relied on to determine this question, the most important are the following. 1. The static test. 2. The hydrostatic test. 3. The state of the ductus arteriosus.

1. THE STATIC TEST. This test is founded on the fact, that the act of respiration causes an increase in the weight of the lungs. There are two forms in which this test has been applied. The first is by comparing the weight of the lungs with that of the body. This is commonly called Ploucquet's test. The second is that of taking the absolute weight of the lungs.

a. Ploucquet's test. This is so called from its having been originally suggested by Ploucquet. It is founded on the fact, that as soon as respiration takes place in the new-born infant, an additional quantity of blood penetrates the lungs, in consequence of which, these organs become heavier than anterior to respiration. As the weight of the body of the child cannot undergo any

change, he suggested accordingly, that a comparison of the weight of the body of the child with the weight of its lungs, would furnish a test by which to determine whether it had respired or not. From the few observations which he made, he came to the conclusion that where respiration had not taken place, the proportion between the weight of the lungs and that of the body, was as 1 to 70; while on the other hand, where respiration had taken place, it was as 1 to 35; or in other words, that the weight of the lungs was doubled in consequence of respiration. A test so beautiful as this, and founded apparently upon principles so truly physiological, it was hoped, would aid, very materially, to solve this important question. Numerous experiments and observations were accordingly made to test its accuracy in actual practice; and the result has been, that while some appreciate it very highly, by others it is viewed as altogether uncertain. In the ten cases which I have examined, the proportions are the following:

Children that had respired.		Children that had not respired.	
1.	1 : 43	1.	1 : 58
2.	1 : 35	2.	1 : 36
3.	1 : 44	3.	1 : 49
		4.	1 : 32
Average,	1 : 40	5.	1 : 50
		6.	1 : 52
		7.	1 : 54
		Average,	1 : 47

Now the conclusions to be drawn from these observations, are manifestly adverse to the accuracy of this test. Taking the individual cases, there is not a single one of those which had not respired, which reach the proportions laid down by Ploucquet, while in the same list, cases 2 and 4 are very nearly the proportions laid down for children that have respired. If we take the general averages, too, of the cases, we find that they do not correspond with the proportions suggested by Ploucquet.

Since the time of Ploucquet, a great number of observations have been made by other persons, and as the result, they have all fixed upon different proportions. The following are some of them.

	Before respiration.	After respiration.
Schmitt,	1 : 52	1 : 35
Chaussier,	1 : 49	1 : 39
Devergie,	1 : 60	1 : 45

These, as being deduced from a large number of cases, come nearer the true proportions than those of Ploucquet, and correspond more nearly with my own observations. Still, however, it is to be recollected that they are mere average numbers, and therefore do not meet the circumstances of individual cases, which of course they ought to do, for the purpose of rendering them practically available. It may be asked, then, is this test to be rejected altogether? As an infallible one, it certainly should be. Notwithstanding this, it is still, I think, valuable as furnishing corroborative proof, and should, therefore, never be neglected. It should always be taken in connection with the other signs; and when this is done, it may aid very materially in coming to a correct conclusion.

b. Absolute weight of the lungs. By some it has been supposed, that the actual weight of the lungs would furnish another criterion of the fact of respiration having taken place or not. Accordingly, an average weight of 1000 grains has been proposed for the lungs of a child which has respired, and 600 grains for those of a child which has not respired. A moment's reflection, however, must convince us that this is still more uncertain than the test of Ploucquet. Children born at the full time, we know, differ greatly in their weight, and of course there must be a corresponding difference in the weight of the lungs. I have known a child born at the full time, healthy and perfect in every respect, and yet weigh only four pounds; while children weighing eight, nine and ten pounds

are by no means uncommon. The lungs, therefore, of a child which had not respired, of nine pounds, would probably weigh more than those of a child of four pounds, which had respired; and such has been found to be the case by actual observation. In the cases which I have examined, the following were the weights.

Before respiration.		After respiration.	
1. - - - - - - -	540 grains.	1. - - - - - - -	396 grains.
2. - - - - - - -	720	2. - - - - - - -	800
3. - - - - - - -	900	3. - - - - - - -	814
4. - - - . - - -	890		
5. - - - - - - -	900	Average,	670
6. - - - - - - -	690		
7. - - - - - - -	689		
Average,	761		

An analysis of these weights will show at once how fallacious this test must be. We have here, in three cases, before respiration took place, the lungs weighing more than in those which had respired; while the general average weight is greater in those which had not respired—just the reverse of what it ought to be according to this test.

2. The hydrostatic test. This test is founded upon the difference in the specific gravity of the lungs before and after respiration. In other words, lungs which have respired will float in water, while those which have not respired will sink. Every observation which I have been enabled to make, has confirmed me in the general accuracy of this test. It is liable, however, to certain fallacies or objections which require to be understood, to enable us to make a correct practical application of the test. On the one hand, lungs which *have not respired* may float from *putrefaction*—from *artificial inflation*—from *emphysema;* while, on the other hand, lungs which *have respired* may sink from *disease*, or from the respiration *being feeble or imperfect.* Of these I shall only notice two, as they are the only ones, of which illustrations have occurred in the cases which I have examined. They are, however, the most important of all the objections.

a. Putrefaction. That the lungs of a child which has not respired may float in consequence of putrefaction, although at one time questioned, is beyond doubt. The case which I shall presently relate, independent of numerous others, establishes this fact. The modes of distinguishing it from the floating of respiration are simple and obvious. *a.* By the air bubbles being visible under the external covering of the lungs. In vital respiration this is not the case. *b.* By the ease with which the air can be pressed out of the lungs. By simply squeezing them in the hand, they can readily be made to sink in water. In vital respiration this cannot be done. *c.* By the sinking of the internal portion of the lungs. The air, in putrefaction, forms on the surface of the lungs; and hence the internal part, if cut out and put into water, will not float. In vital respiration, the internal part will float more readily than the external part of the lungs.

Case. Aug. 25, 1838. A still born child was presented for examination by Dr. Wilson of Bellevue Hospital. The child had been born two days before. The weather being intensely hot, decomposition had commenced. The body was of a greenish colour; the abdomen greatly distended; the skin peeling off in several parts of the body. The cord about two inches long, smooth, soft, moist and flexible; weight, 31680 grains; length, 22 inches; the umbilicus twelve inches from the top of the head—the centre of the body, accordingly, a little above the umbilicus. On opening the chest, the surface of the lungs was found covered with air bubbles, varying from the size of a large pea to a pin's head. On the posterior part of these organs there were no air bubbles. The colour of the lungs was dark red, with here and there spots of a lighter hue. The lungs taken out of the chest, with the heart and thymus gland attached, floated

in water; separated from the heart and thymus gland, they also floated, as did also the latter organs. The weight of the lungs was 540 grains; making the relative weight to that of the body as 1:58. A portion of the internal part of the right lung being cut out, sank in water. Both lungs were now subjected to moderate pressure, and after this they sank in water. Each lung was now cut into ten pieces, and on being put into water, some sank, while others floated. On being moderately compressed between the fingers, each separate section sank rapidly to the bottom of the vessel. The ductus arteriosus was cylindrical in shape, and about the size of the pulmonary artery; the foramen ovale open; the umbilical vessels and ductus venosus pervious; and meconium in the large intestines.

This case illustrates, very strikingly, the fact that the lungs of a still born child may float from putrefaction, and at the same time confirms the accuracy of the tests, by which it may be distinguished from the floating which is the result of vital respiration.

b. Artificial inflation. That the lungs of a child which has not respired may be artificially inflated, so as to cause them to float, though doubted by some, is well established; and when this is the case, it presents one of the most puzzling problems—to distinguish it from vital respiration. The only test upon which any reliance can be placed, is the application of suitable pressure to the lungs. If the floating be the result of vital respiration, no degree of pressure can expel the air from the lungs sufficiently to cause them to sink; while, on the other hand, in cases of artificial inflation, this can be done.

Case. Dec. 6, 1839. Examined a child which had been still born, but which the accoucheur had attempted to resuscitate by blowing into its mouth, but without success. Length, twenty inches; the centre of the body at the umbilicus; head full of hair; nails full grown, and the body perfectly sound; weight, 47040 grains. No inflammatory circle around the navel; thorax flat. On opening the chest, the lungs were found in the upper and lateral portions of the chest, leaving the pericardium and diaphragm uncovered. On taking out the lungs, the *right* lung was of a dark red colour, with the exception of the lower part of the upper lobe, and the upper part of the lower lobe, which were of a bright red. The middle lobe had alternate patches of bright red and dark red. The left lung was dark red, with the exception of the extremity of the lower lobe and the posterior part of the upper lobe, which were bright red. Distinct crepitus in both lungs in the parts corresponding to the bright patches. The weight of the lungs was 900 grains, making the relative weight to that of the body as 1:52. Both lungs floated in water. The separate lobes of each lung also floated. The right lung was then cut into twelve pieces, all of which floated; but all the pieces sank after being subjected to pressure. The left lung was cut into ten pieces, and all but one floated. On pressure being made, they all sank. The pressure was made by placing them in a piece of strong linen, and then twisting and wringing them; after this they were placed under a large flat stone.

The ductus arteriosus was as large as the trunk of the pulmonary artery; cylindrical in shape, and much larger than the branches of the pulmonary artery. The foramen ovale, ductus venosus, umbilical arteries and veins all open.

This case is exceedingly interesting, as illustrating the effects of artificial inflation, and as showing how nearly they resemble those of vital respiration. The floating of the lungs was almost perfect, and the weight of the lungs (900 grains) was nearly that of the usual average standard of children that have respired. On the other hand, the sinking of the lungs, after due pressure, the relative weight of the lungs and the body, 1:52, and the state of the ductus arteriosus, were in favour of artificial inflation.

3. State of the ductus arteriosus. This is also called the *Vienna* test, from its being originally suggested by Prof. Bernt, of Vienna. It is founded on certain changes, which take place in the ductus arteriosus, immediately after respiration. In the mature fœtus before respiration, this duct is about half an inch

long, cylindrical in shape, with a diameter about equal to that of the pulmonary artery, and more than double the size of the branches of that artery, each of which is equal to that of a crow quill. If the child have respired a few moments, the duct becomes conical in shape, with its contracted part towards the aorta. If the child have respired for some hours or a day, it becomes cylindrical again in shape, but lessened in length and diameter. It is much less now than the pulmonary artery, and not larger than the branches of that artery. If the child have respired for several days or a week, the duct will be found still more contracted; its diameter will be not larger than a crow quill, while the branches of the pulmonary artery are much enlarged to the size of a goose quill.

The result of my observations goes strongly to support the accuracy of these observations. In six still born children, I found the ductus arteriosus cylindrical in shape, and about the size of the main trunk of the pulmonary artery, and considerably larger than the branches of the pulmonary artery—in some cases, double the size. In a seventh still born child, I found it nearly of the size of the pulmonary artery, but not much larger than its branches. In a child which had lived four days, the ductus arteriosus was cylindrical, three lines in length, and about the size of a crow quill, and not more than half the size of the pulmonary artery. In a child which had lived three days, the ductus arteriosus was two and a half lines long and cylindrical; about one third the size of the pulmonary artery, and somewhat smaller than the branches of that artery. In a child which lived forty-six hours, the ductus arteriosus was one fourth of an inch long, cylindrical in shape, less than half the size of the pulmonary artery and about equal to the branches of that artery.

Although the foregoing observations, generally speaking, confirm the accuracy of this test, it is to be recollected that it is not to be relied upon in all cases. This has been shown particularly by Orfila.

I have thus, as briefly as possible, recorded the results of the foregoiug observations, without indulging in the many comments which naturally suggest themselves. I have, however, in another place,* so fully discussed all the points connected with this subject as to render them at present unnecessary.—*Trans. Med. Soc. State of New York*, 1842.

Inversion of the Uterus.—D. Humphreys Storer, M. D., reported to the Boston Society for Medical Improvement, April 11, 1842, the following case of inversion of the uterus.

He was called to a woman in labour. In ten or fifteen minutes there came two smart pains, and the child was born. In five minutes the placenta was thrown off. The cord was not touched, except to divide it and remove the child. On putting his hand under the clothes, to take away, as he supposed, the placenta, he found that he had hold of the uterus with the placenta attached. He removed the placenta, put his fingers to the fundus of the uterus, and passed it up without the slightest difficulty. There was some flowing from the uterus where the placenta was detached, but not great, and none after it had passed up. The woman was very much prostrated, and for an hour appeared as if she was dying. She however revived, and the next morning was comfortable. This case proves that inversion may take place, without the interference of the practitioner. For no traction whatever was made upon the cord, which was of the usual length, and not encircling the child.

Drs. Dewees, Burns and Gouch, in cases of inversion, advise, when it can be accomplished, the return of the uterus before the removal of the placenta, on account of the dangerous hemorrhage which is otherwise liable to ensue. Dr. Bard recommends the previous removal of the placenta.

Dr. Storer followed in this case the practice of Dr. Bard, and the ease with which the uterus was returned, and the happy convalescence thus far, she being as well to-day (the sixteenth day after delivery,) as she had been at the same

* Elements of Medical Jurisprudence, by T. Romeyn Beck, M. D., and John B. Beck, M. D.